

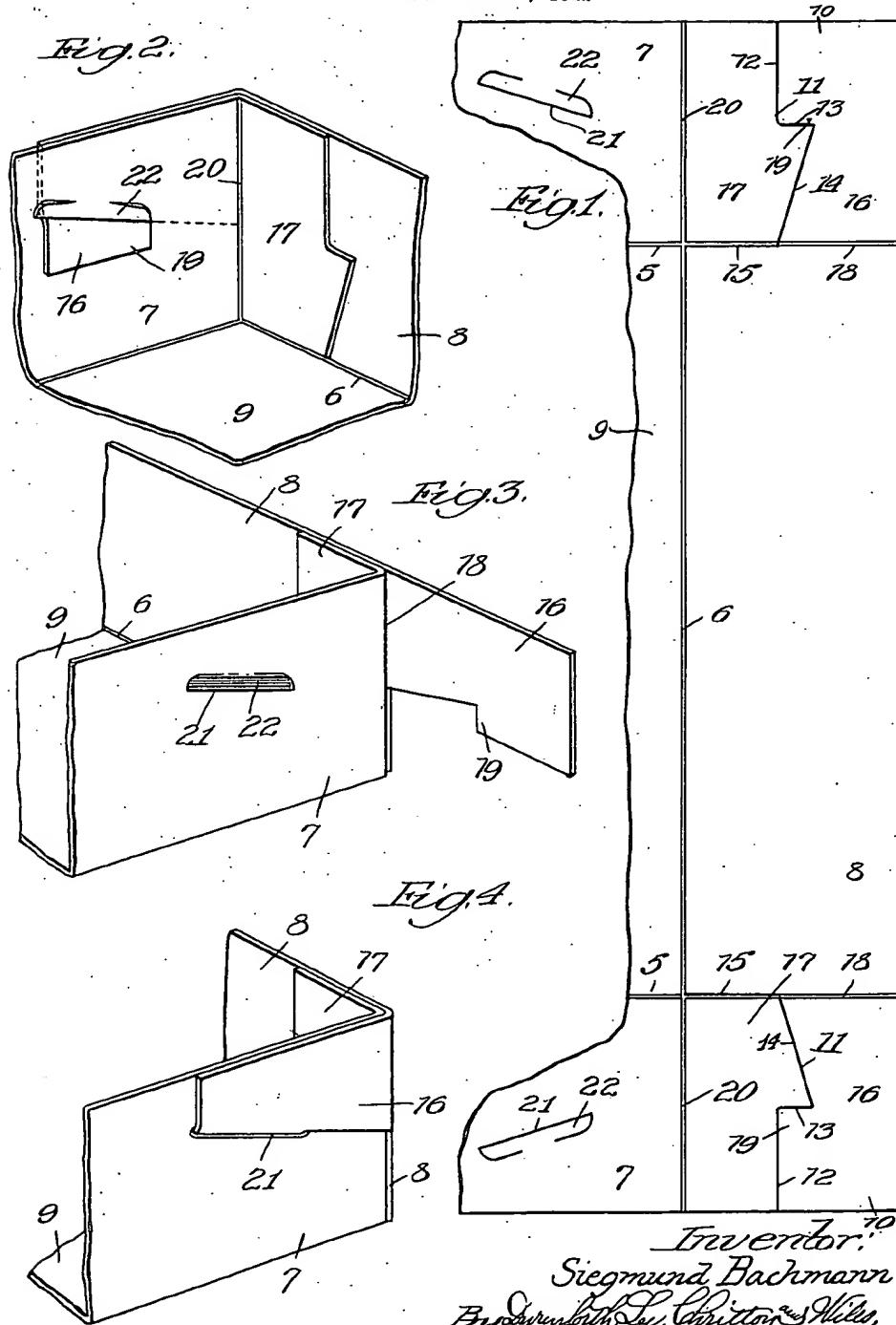
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**BOX**

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Attest. S. 4

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# UNITED STATES PATENT OFFICE.

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## BOX.

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*To all whom it may concern:*

Be it known that I, SIEGMUND BACHMANN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Boxes, of which the following is a specification.

My invention relates to boxes of the so-called corner lock type wherein adjacent 10 walls of the box are provided with portions adapted to be interlocked for holding the box in erected condition.

As boxes of the type above referred to have hitherto been provided they are so 15 weak at their interlocking portions that they readily tear away, permitting the box to collapse when stressed to a degree which often occurs in the handling of the box; and furthermore in the case of boxes wherein the 20 shoulder portions of the interlocking tongues of the corner-locks extend downwardly in engagement with the cooperating portions of the locks, which is a desirable condition as is well understood in the 25 art, the tongues, as boxes have hitherto been constructed, readily disengage in the handling of the box and produce objectionable accidental collapsing of the box. Furthermore, especially where the grain of the 30 paper board forming the walls having the portions with which the interlocking tongues interlock, extends crosswise of these walls, or in other words, vertically, and the grain of the board forming the walls carrying 35 the tongues extends lengthwise of these walls and thus the latter are relatively weak in resisting downward pressure exerted against their upper edges, the boxes as hitherto provided often break down due to lack 40 of stiffening reinforcement of these weak walls. Also as boxes of all shapes and sizes of the corner-lock type have hitherto been constructed cut out portions of the sheet from which the box blanks are formed are 45 stripped from the sheet which operation adds expense to the manufacturing of the boxes.

One of my objects is to provide a box of the so-called corner-lock type employing 50 tongues the locking portions of which extend downwardly, wherein the tongues will not disengage from the portions of the box with which they interlock, even in the rough handling of the box or the subjection there- 55 to of relatively great stresses which, if ex-

erted against boxes of this type as hitherto constructed, would cause the box to collapse.

Another object is to provide a construction of box of the corner-lock type wherein the shoulder portions of the tongues shall be 60 highly resistant to stresses tending to tear the tongues at their shoulder portions.

Another object is to provide a construction of box wherein the walls carrying the 65 tongues shall be reenforced against their tendency to crush when downward pressure is exerted against the upper edges of these walls.

Another object is to produce a box of the 70 corner-lock type wherein stripping of cut-out portions of the sheet may, at least as to some sizes of boxes, be avoided and economy in labor effected.

Another object is to provide a simple 75 form of box of the character stated and accomplishing the objects above enumerated.

Another object is to provide a form of blank, for forming a corner-lock box, which lends itself to the producing of a desirable 80 form of package where the blanks are provided in a stack.

Another object is to generally improve upon boxes of the corner-lock type, whereby the boxes are better adapted for their purpose, may be more economically manufactured, be highly resistant to impairment 85 and accidental collapsing and be readily erected and unfolded to flat condition.

Referring to the accompanying drawing:

Figure 1 is a broken view of one end of a 90 blank from which a box embodying my invention may be formed. Figure 2 is a perspective view of one of the similar corners of the box, the box being shown in erected condition and the corner being viewed from 95 the inside of the box. Figure 3 is a similar view showing the box in partly erected condition, the shouldered tongue being shown out of interlocked position relative to the portion with which it interlocks; and 100 Figure 4, a view like Fig. 2 viewing the corner from the exterior of the box.

Referring to the particular illustrated embodiment of my invention, one end of the blank from which the box is formed is 105 shown in Fig. 1, this blank preferably being cut from a sheet of paper-board, such as suit-boxes, hat-boxes and the like are commonly constructed.

The blank shown, which is provided for 110

forming a rectangular box the upwardly-extending walls of which extend at a right-angle to the bottom portion of the box, comprises a substantially rectangular sheet of material provided with the parallel folding lines 5 set in from opposite sides of the blank and with parallel folding lines set in from the opposite ends of the blank, the one of the last-referred-to folding lines at 10 one end only of the blank being shown and represented at 6, it being understood that the folding line which parallels the line 6 at the opposite end of the blank is parallel with the edge of the adjacent end edge of 15 the blank and spaced therefrom as shown on the line 6. The blank is foldable along the folding lines referred to, to form the side walls 7 and the similar end-walls of the box, one of which is represented at 8, 20 these walls extending about the edges of the centrally-disposed rectangular bottom-forming portion 9 of the blank. The folding lines referred to intersect each other adjacent the four corners of the blank, thereby defining at each corner of the blank a corner-extension, those at one end of the blank, and illustrative also of those at the opposite end of the blank, being shown at 10. Each corner-extension is cut from the outer edge 30 thereof which extends at an angle to the folding lines 6, to the portion of the folding line 5, which extends beyond the folding-line intersection, between the ends of this portion, along the irregular line represented 35 at 11 and thence in a direction toward the bottom-forming portion 9 of the blank to the adjacent point of intersection of the line 5 with the line 6. The irregular lines 11 each comprise, in the particular construction illustrated, a portion 12 which extends part way across the extension from an outer edge thereof and is shown as parallel with the folding-line 6, a portion 13 which extends from the inner end of the portion 40 12 in a direction away from the adjacent folding line 6, and shown as parallel with the folding lines 5, and a portion 14 which extends from the outer end of the portion 13 to the folding-line 5 at the portion of the latter extending beyond its intersection with the folding-line 6. The line along which the corner extension is cut from the end of the line 14 to the adjacent point of intersection of the folding-lines 5 and 6, and 50 55 above referred to, is represented at 15. Thus cutting each corner extension divides it into two sections 16 and 17, the section 16, which is connected with the adjacent end of the wall 8 along the extension of the folding line 5, this extension of the line 5 being represented at 18, forming a tongue hingedly connected with the wall carrying it and presenting a shoulder portion 19 which, 60 65 70 75 80 85 90 95 100 105 110 115 120 125 130 when the box is erected, extends in a direction toward the bottom portion 9 of the box. The other section 17, which is connected with an end of the adjacent wall 7 along the extension of the folding-line 6, this extension of the folding-line being represented at 20 and this section thus being 70 hingedly connected with the wall carrying it, forms a stiffening reinforcement for the wall carrying the tongue 16 at the corner of the box, as hereinafter described, it being noted that the edge of the section 17 formed 75 by cutting the material along the line 15 is straight and in the erected condition of the box parallels the upper surface of the bottom 9 of the box.

The ends of the walls 7 adjacent each corner extension 10 are shown as containing openings 21 adapted to receive the shoulder-portions 19 of the tongues 16 and form therewith corner locks at the four corners of the box for maintaining the walls in 85 erected condition, the openings 21 being shown as formed by partially cutting from the material forming the walls 7, the lips 22 which are adapted to be flexed at the portions thereof at which they are connected 90 with the walls carrying them, to permit of the introducing of the shoulders 19 of the tongues into the openings thus afforded in the side walls 7.

In the erecting of the box from the blank 95 of Fig. 1, the walls 7 are folded upwardly and inwardly toward each other along the folding-line 5, and the sections 17 are swung at the folding lines 20 in an inward direction 100 to cause them to extend inwardly at an angle 105 to the walls carrying them. The walls 8 are then swung upwardly and inwardly toward each other along the folding-line 6 and against the sections 17, as clearly shown in Fig. 3, and the tongues 16 are then swung 110 at the folding-lines 18 toward the adjacent side walls 7 and the shoulder portions 19 inserted into the openings 21 to the position shown in Figs. 2 and 4, in which operation the one erecting the box slightly outwardly 115 deflects the end walls carrying the tongues 16 to permit the shoulder portions of the tongues to enter the openings 21, this being rendered possible because of the severing of the corner extensions 10 along the lines 15. 120

The box may be readily unfolded to flat condition by flexing the walls carrying the tongues, between the upper and lower edges of these walls, to cause the tongues to swing upwardly out of interlocked position with the portions of the walls provided with the openings 21.

The feature of providing the tongues as stated is of great importance from a practical standpoint, as the tongues remain 125 interlocked with the walls containing the openings 21 even in the rough handling of the box and the supporting of the latter by the grasping of one wall only thereof. In this connection it may be stated that 130

when pressure is brought to bear on the end walls in a direction tending to cause the latter to flatten outwardly into the plane of the bottom portion 9, the tendency of these walls is to swing at the folding lines between them and the bottom portion of the box, but as the tongues and openings with which they cooperate are so formed that to swing the tongues out of the openings the tongues must be swung through arcs of less radius than in those cases in which the tongues are united with the walls carrying them clear to the bottom portion 9 of the box, the shoulder portions of the tongues will not swing out of the openings 21 but will be held in interlocked relation thereto thus preventing these walls from collapsing. It will also be noted that the shoulder portions of the tongues extend 20 downwardly toward the bottom portion 9 of the box, which is a desirable feature in boxes of this character, as thereby obstruction to the introduction of merchandise into the box is avoided.

25 The feature of providing the stiffening reinforcements 17 is of advantage, especially where the grain of the material forming the walls against which they flatwise extend in the erected condition of the box 30 and which, in the particular construction illustrated carry the tongues, extends lengthwise of these walls, whereby these walls are inherently less resistant to buckling or breaking in the case of downward pressure exerted against their upper edges, than in the case of the remaining walls of the box wherein the grain extends vertically. The stiffening sections 17 as will be noted, and as described, extend substantially the full height of the walls which they oppose, viz., the walls 8, their lower edges 15 flatwise engaging the upper surface of the bottom portion 9 of the box whereby the box walls are caused to be rendered much more resistant to stresses tending to break them down than in the case of an un reinforced box. Furthermore, the stiffening reinforcements serve to close the box at the lower cut portions thereof.

35 Another feature of advantage resulting from forming a box as explained, and which is in accordance with the preferred embodiment of my invention, and applies to at least certain sizes of boxes, is that no stripping of cut-out parts, which is an oper-

ation required to be performed in the forming of corner lock boxes as hitherto provided, is rendered necessary, as no portions of the blank are required to be cut away, and thus the box may be very economically 60 constructed. Furthermore, the box may be made from a rectangular sheet of material and all of the portions of the material comprising the sheet may be utilized to advantage in the manufacture of the box. The 65 constructing of the box from a blank of substantially rectangular shape in cross-section without cut-away portions at the outer edges of its corners forming irregular edge contours as in the case of the common form 70 of corner lock box, is of advantage especially in the packaging of a stack of the blanks.

75 It will be understood that in boxes where the upwardly-extending walls do not extend at a right angle to the bottom portion, as for example where their walls flare outwardly in an upward direction, the extensions of the folding lines 5 and 6 beyond the intersections of the latter, instead of being in alignment with the portions of these lines defining the bottom portion 9 would extend obliquely thereto.

80 While I have illustrated and described a particular construction embodying my invention, I do not wish to be understood as intending to limit it thereto as the same may be variously modified and altered without departing from the spirit of my invention.

85 What I claim as new, and desire to secure by Letters Patent, is:

A box made from a blank comprising a bottom portion, walls rising therefrom and extending at an angle to each other, tongues 90 on walls of the box adapted to overlap adjacent walls, said tongues and the walls overlapped thereby having portions adapted to be interlocked with each other, said interlocking portions when in set up condition consisting of a slot below the upper edge of the box and angularly disposed relative to the upright corner thereof, and a downwardly extending portion the inner engaging edge of which is substantially 100 parallel with the box corner, said tongues at their juncture with the walls carrying them reaching short of the bottom portion of the box.

SIEGMUND BACHMANN.